Electropolishing Facilities

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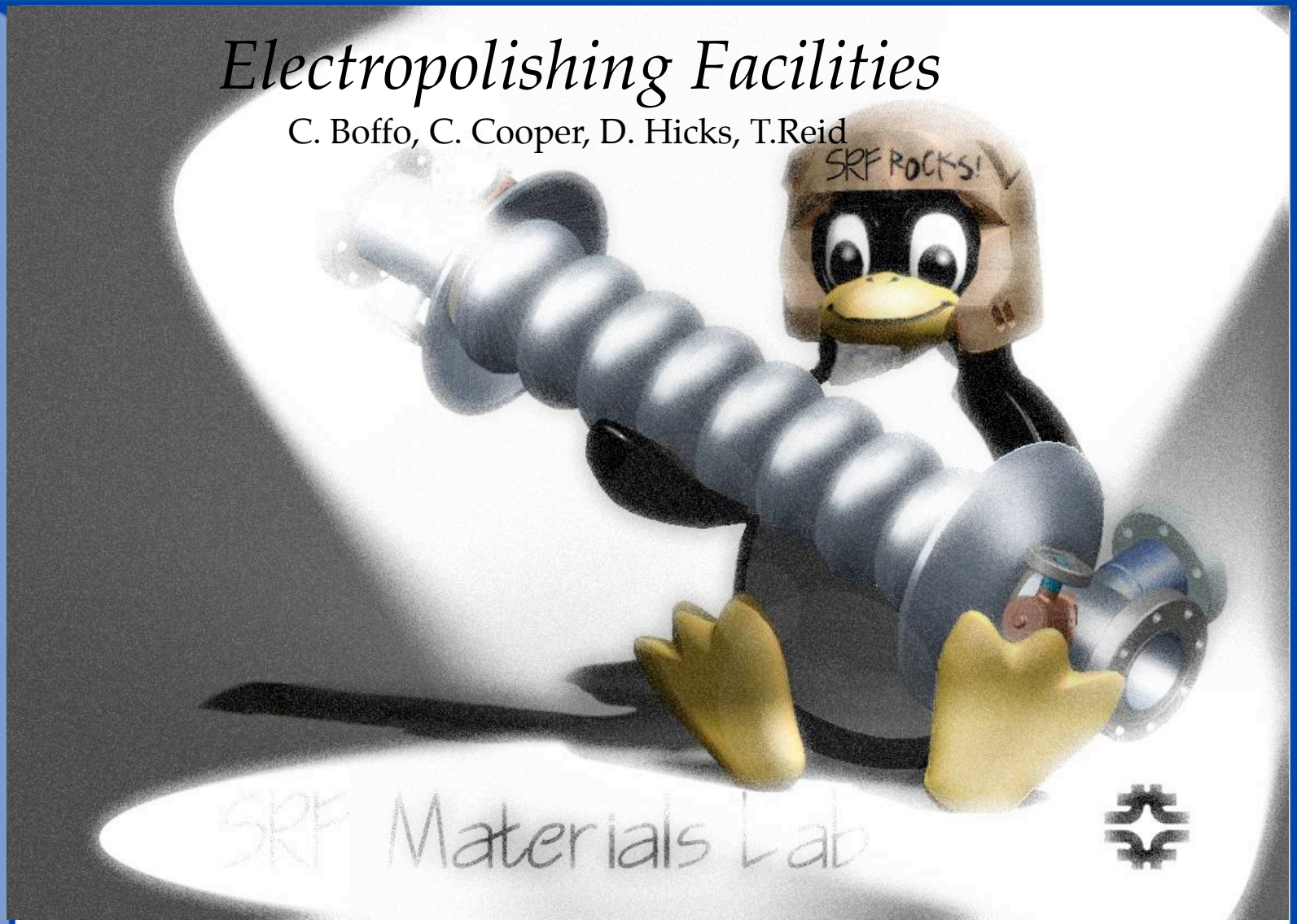

Ongoing R&D Work:

- Small samples measurements to check the R_a and surface characterization.
- Half cell setup to understand vertical EP
- Dumb-bells setup (to be upgraded) to see if it is possible to perform the heavy EP before the final weld
- **Start** FEA simulation (as DESY is doing) to better understand the EP parameters space in terms of current flow, temperature and acid flow.

EP Effort at FNAL

Participation to international discussion on EP:

- SMTF Collaboration Meeting
- TTC Meeting
- …

FNAL-J-lab Collaboration

Agreed w/ J. Mammoser, he will send us the drawings of their facility and we will collaborate on:

- New design of rotating heads to adapt their facility to ILC cavities
- Vertical extraction of cathode
- HF cell optimization (incorporated in heads)

Later on we will work together on the EP parameters optimization and on understanding current distribution

We will start weekly video meetings to coordinate the efforts

New Facilities

We are looking into possible commercially available EP units:

Following the J-lab indications we are exploring the capabilities of two companies involved in the semiconductor business that might be able to adapt their etching tools to do cavity EP.

Collaboration with ANL for a possible new facility?

Collaboration with MSU for EP development?

Next steps

My personal point of view:

To pursue the tight loop we need to build expertise at FNAL both on R&D to better understand EP and on infrastructure to check our ideas.

A guest scientist will join us for 1 year 50% of the time on EP

A guest scientist will join us for 6 months 25% of the time on EP

As for now, since the manpower is limited, we need to define clear goals for the FNAL EP effort and try to accomplish them